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Sun et al.

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(54) **LIGHT BAR AND LIGHT EMITTING MODULE USING THE SAME**

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F21V 19/00 (2006.01)
G02F 1/1335 (2006.01)

(52) **U.S. Cl.**
CPC ***F21V 19/0035*** (2013.01); ***F21S 4/28*** (2016.01); *G02F 1/133603* (2013.01); *G02F 2001/133612* (2013.01)

(58) **Field of Classification Search**
CPC F21S 2/00; F21S 4/008; F21V 19/00; F21V 23/00; F21V 23/06; F21V 19/0035; F21Y 101/02; H05K 1/00; H05K 1/0274; H05K 1/111; H05K 1/115; H05K 1/117; G02F 2001/133612; G02F 1/133603
USPC 362/249.02, 249.01, 551, 581, 582, 362/217, 383, 430, 800, 630, 631, 97.3
See application file for complete search history.

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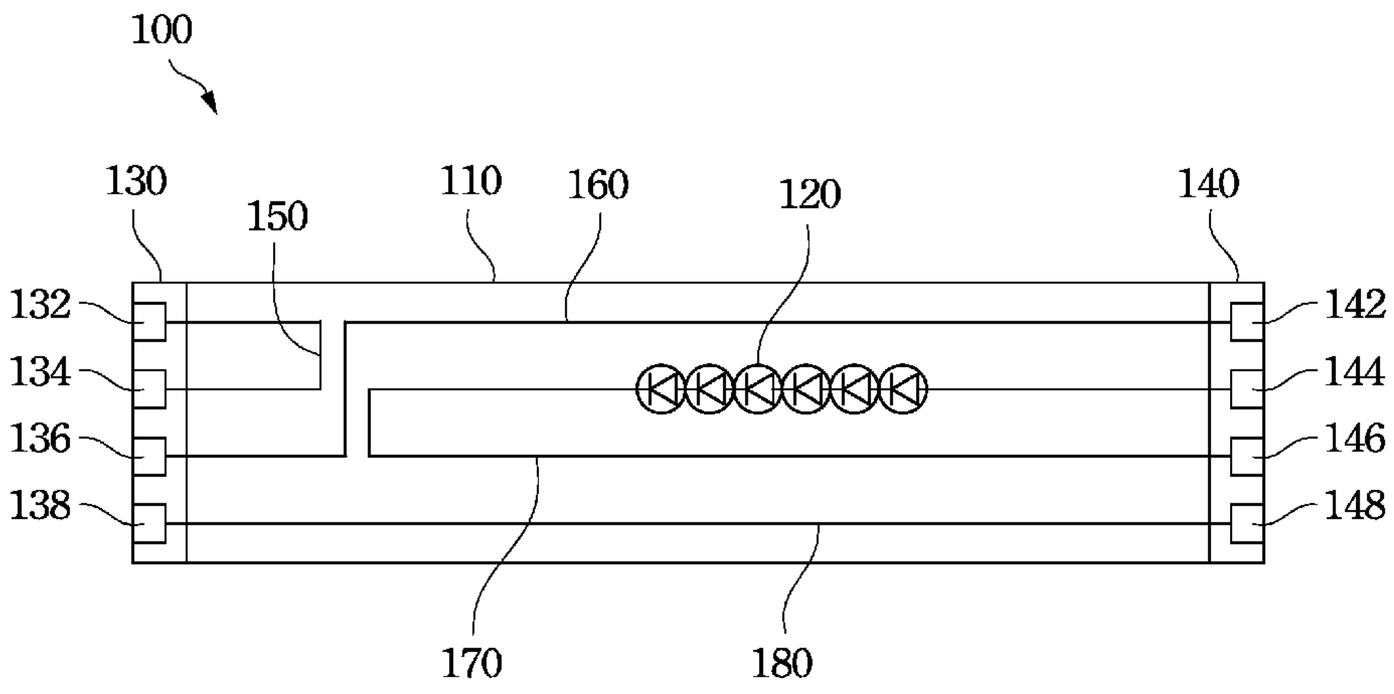
(57) **ABSTRACT**

A light bar is disclosed which includes a substrate, plural LEDs disposed on the substrate, a first connector and a second connector disposed on opposite sides of the substrate, a first wire, a second wire, a third wire, and a fourth wire. The first connector sequentially includes a first pin, a second pin, a third pin, and a fourth pin. The second connector sequential includes a fifth pin, a sixth pin, a seventh pin, and an eighth pin. The first wire connects the first pin to the second pin. The second wire connects the third pin to the fifth pin. The third wire connects the sixth pin to the seventh pin. The fourth wire connects the fourth pin to the eighth pin. A light emitting module using the light bar is also disclosed.

14 Claims, 7 Drawing Sheets



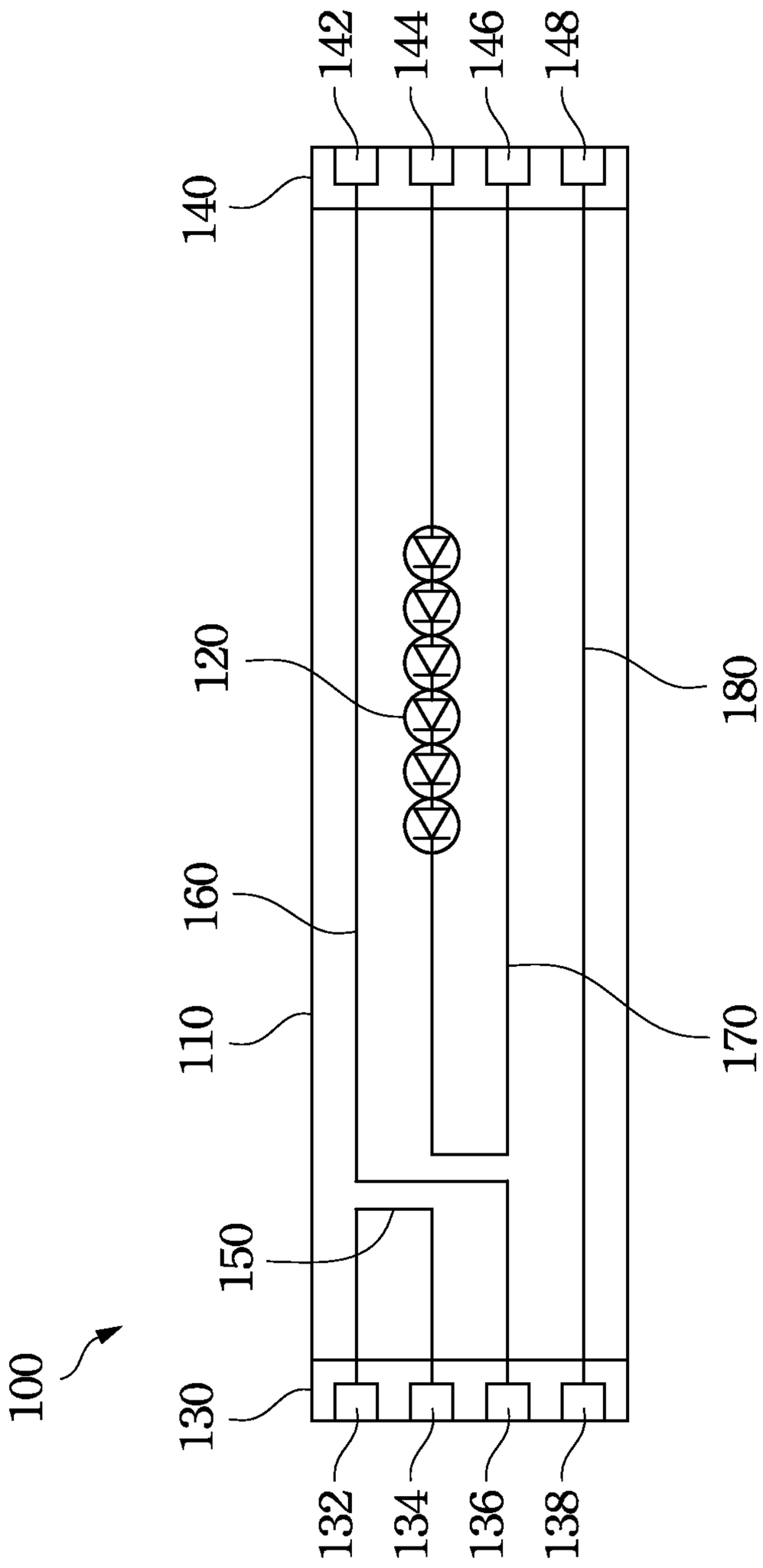

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Fig. 1

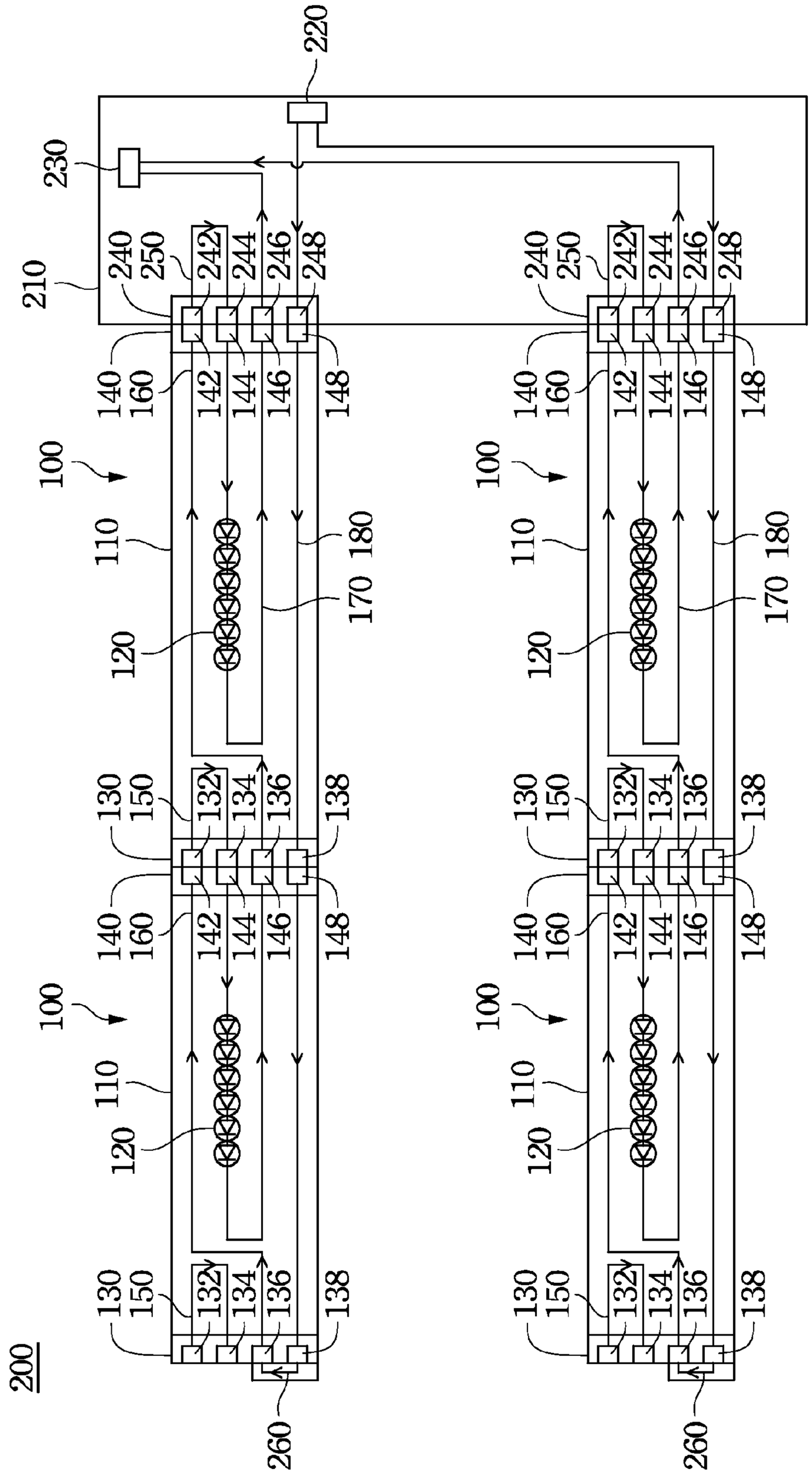
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Fig. 2

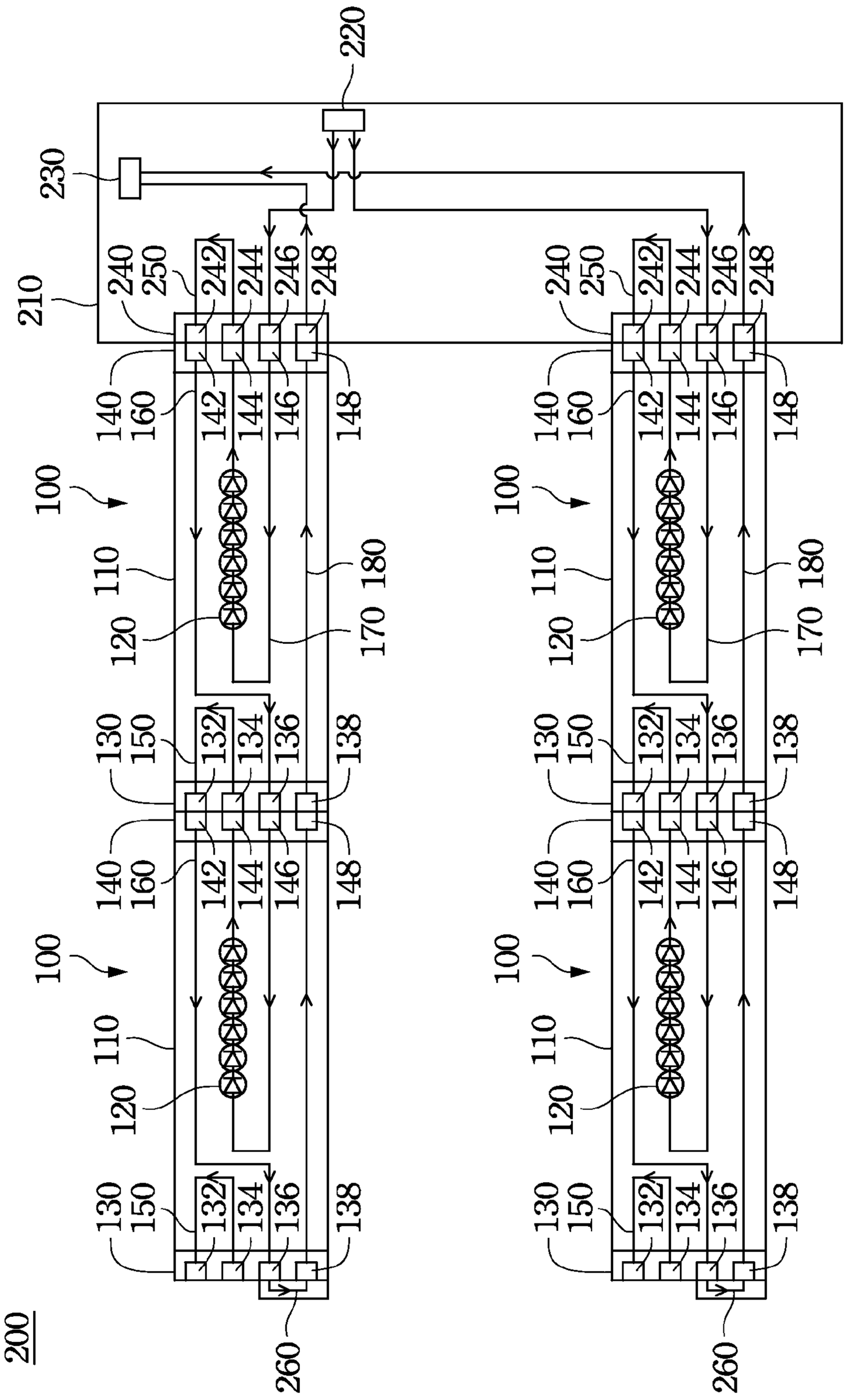
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Fig. 3

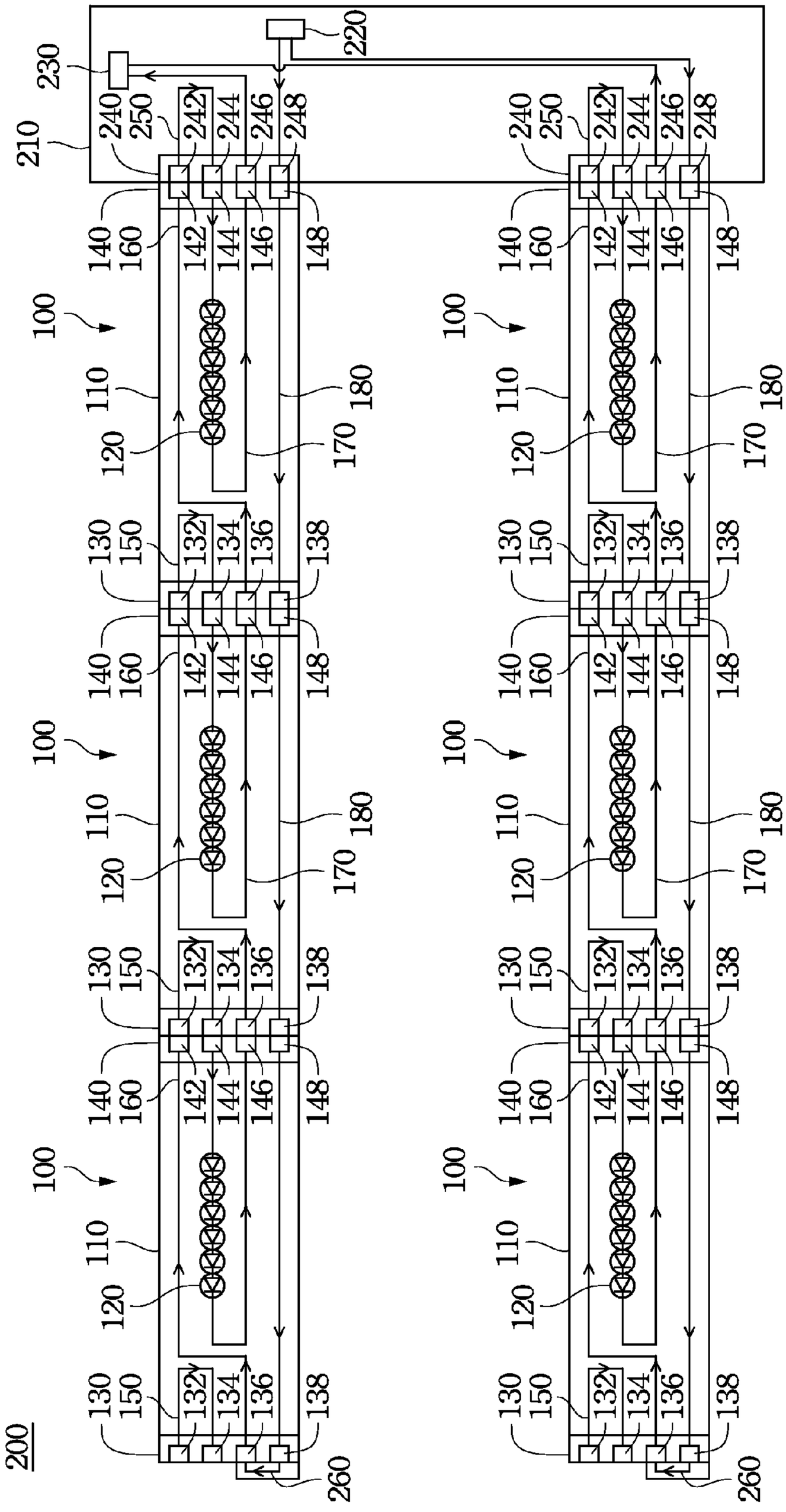
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Fig. 4

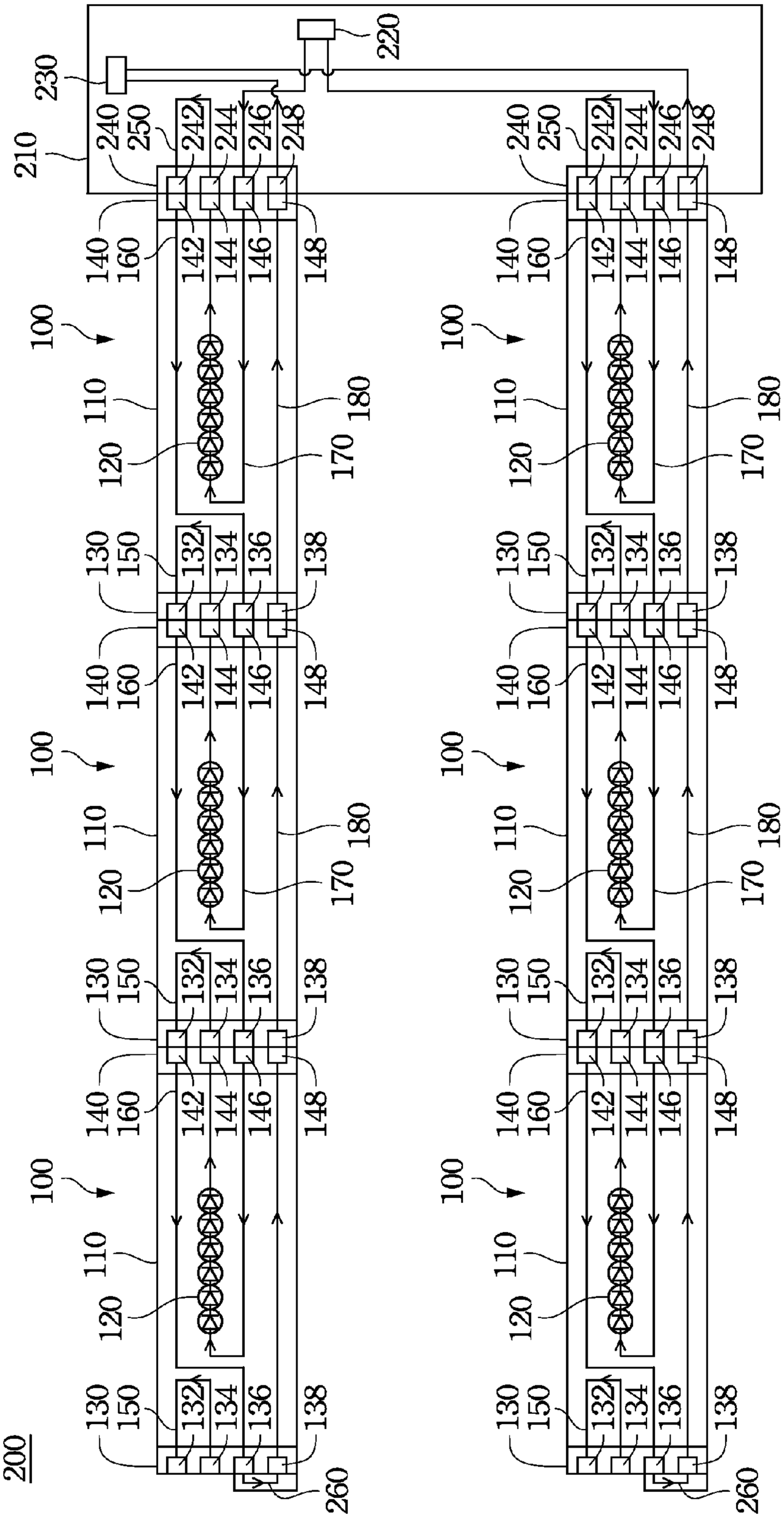
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Fig. 5

Fig. 6

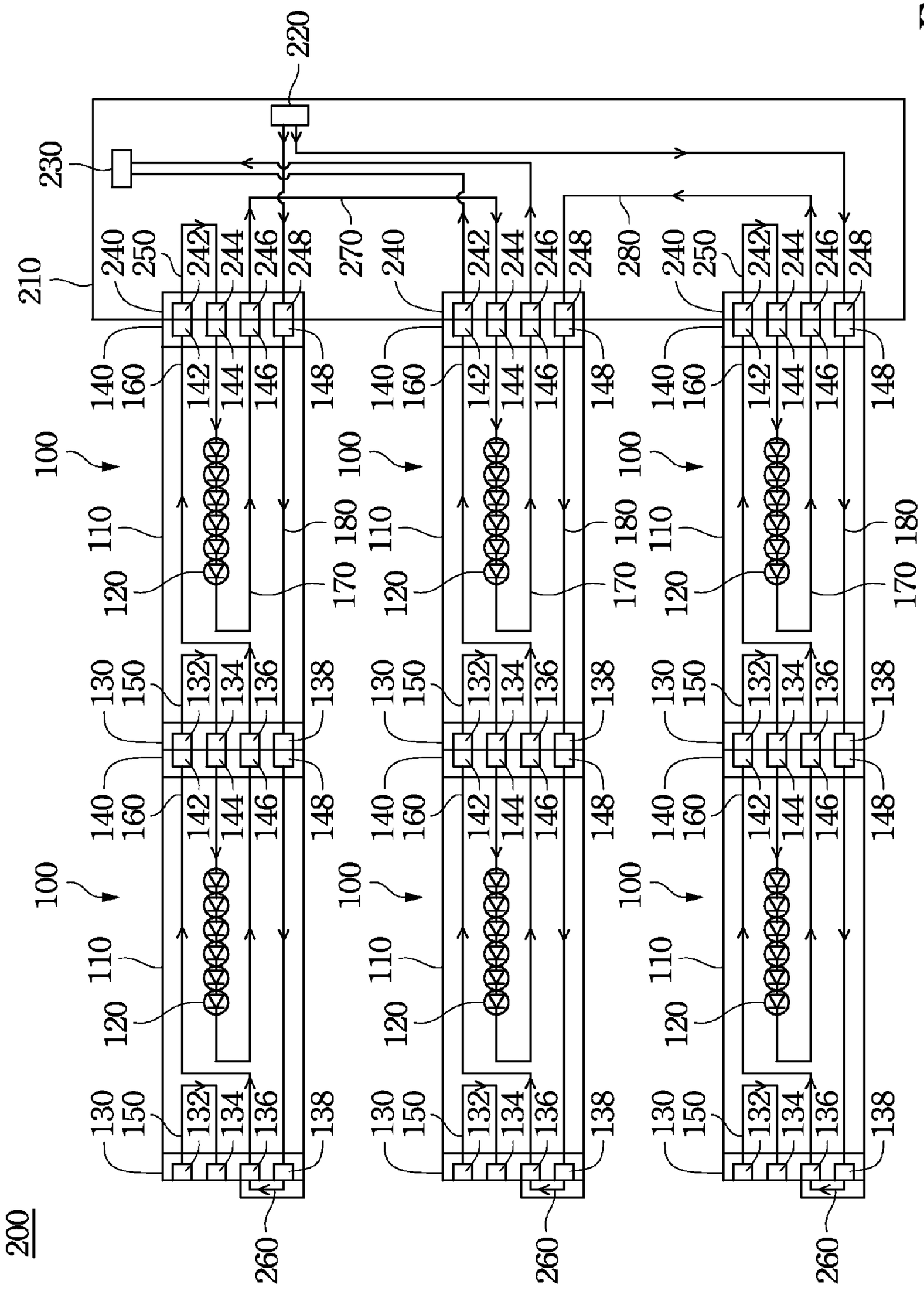
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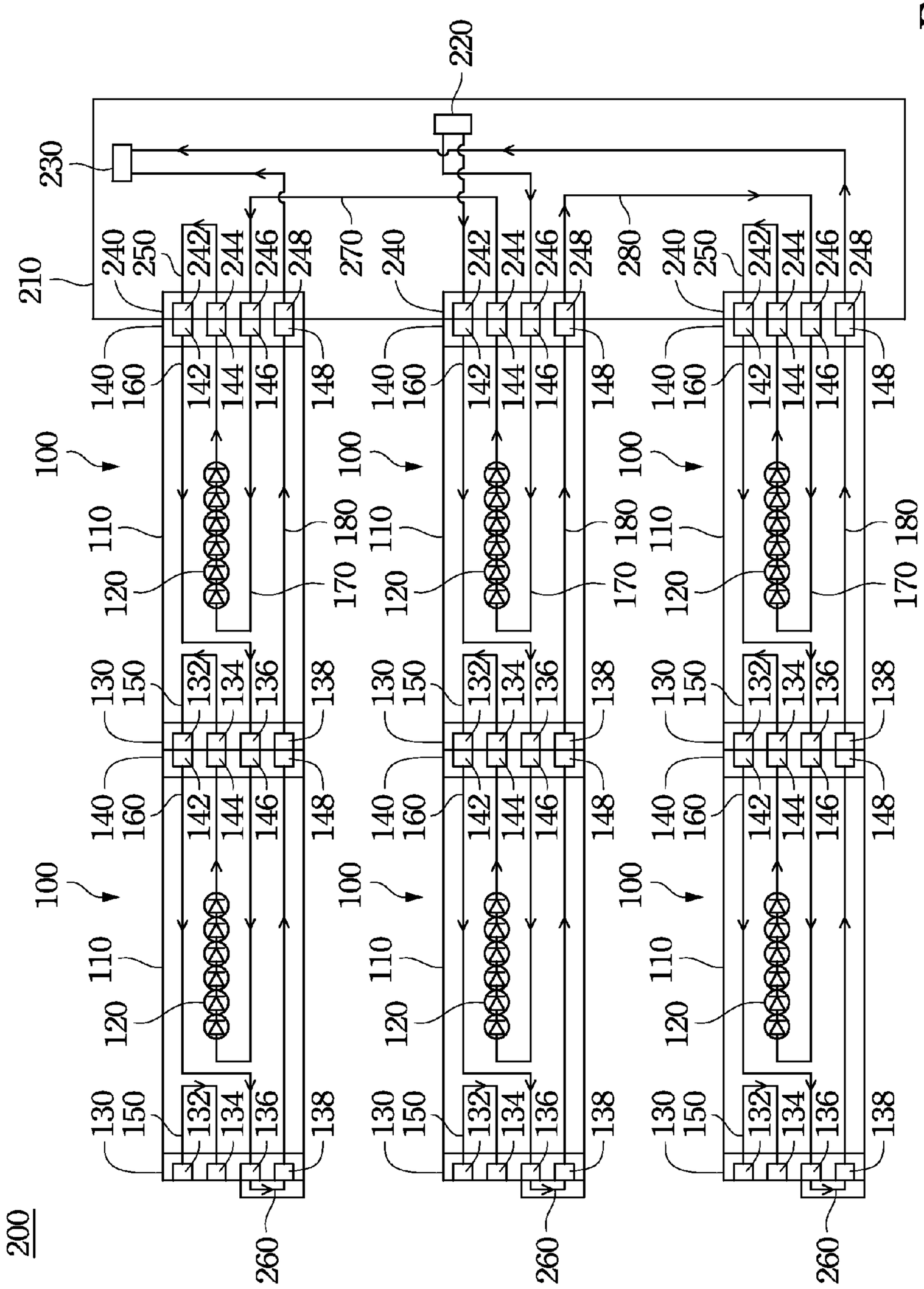
Fig. 7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LIGHT BAR AND LIGHT EMITTING MODULE USING THE SAME

RELATED APPLICATIONS

This application claims priority to China Application Serial Number 201210255458.2, filed Jul. 23, 2012, which is herein incorporated by reference.

BACKGROUND

1. Field of Invention

The present invention relates to a light bar. More particularly, the present invention relates to a light bar utilized in a direct backlight module.

2. Description of Related Art

A liquid crystal display includes the main elements of a backlight module, a display panel, and a frame. The backlight module is utilized for providing a light source to enable the display panel to display a normal and uniform image. The backlight module includes plural optical sheets, such as a light guide plate, a diffusion sheet, and a prism sheet for uniformly distributing the light emitted from the light source on the display panel to provide images. The frame includes a bezel and a mold frame for fastening the display panel and the backlight module. The backlight module can be a direct backlight, in which the light source is disposed behind the screen, or an edge backlight module, in which the light source is disposed at the edge of the screen.

With the ever-increasing size of displays, the size of light bars utilized in direct backlight modules is also becoming larger and larger. In order to simplify fabrication, transport, and assembly, several light bars are assembled to obtain a predetermined size. However, the light bars are frequently designed having different layouts, thereby increasing the cost of managing the light bars and making assembly difficult.

SUMMARY

The invention provides a light emitting module made by connecting plural light bars with substantially the same layout to reduce management costs and make assembly easier.

An aspect of the invention provides a light bar which includes a substrate; a plurality of light emitting diodes disposed on the substrate; a first connector disposed at an end of the substrate and sequentially including a first pin, a second pin, a third pin, and a fourth pin; a second connector disposed at another end of the substrate opposite to the first connector and sequentially including a fifth pin, a sixth pin, a seventh pin, and an eighth pin; a first wire connecting the first pin to the second pin; a second wire connecting the third pin to the fifth pin; a third wire connecting the sixth pin to the seventh pin and serially connecting the light emitting diodes; and a fourth wire connecting the fourth pin to the eighth pin.

The first wire and the third wire can be U-shaped, and the fourth wire can be linearly arranged. The second wire can be step-shaped and partly surrounds the light emitting diodes. The light emitting diodes can be serially connected from the sixth pin to the seventh pin. The light emitting diodes can be serially connected from the seventh pin to the sixth pin.

Another aspect of the invention provides a light emitting module which includes a plurality of the light bars. The second connector of each of the light bars is connected to the first connector of the adjacent light bar. The light emitting module further includes an adopting board, and a third connector disposed on the adopting board, in which the third connector is connected to the second connector of the light bar adjacent to the adopting board. The third connector sequentially includes a ninth pin, a tenth pin, an eleventh pin, and a twelfth pin. The light emitting module further includes a fifth wire for connecting the ninth pin to the tenth pin. The light emitting module further includes a power source, and the eleventh pin or the twelfth pin is connected to the power source. The light emitting module further includes a driving chip, in which the twelfth pin or the eleventh pin is connected to the driving chip. The light emitting module further includes a conductive element for electrically interconnecting the third pin and the fourth pin of the first connector of the light bar farthest from the adopting board. The conductive element can be a jumper, a pad, a wire, or a connector.

Users may flexibly assemble the light bars with substantially the same layout in rows, and the light bars in such rows can be further interconnected to thereby provide the light emitting module with a predetermined size. The light bars utilized in the light emitting module have substantially the same layout. Therefore, the cost of managing the light bars can be reduced, and assembly can be performed more easily. It is to be understood that both the foregoing general description and the following detailed description are by examples, and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention. In the drawings,

FIG. **1** is a schematic diagram of an embodiment of a light bar of the invention;

FIG. **2** is a schematic diagram of a first embodiment of a light emitting module of the invention;

FIG. **3** is a schematic diagram of a second embodiment of the light emitting module of the invention;

FIG. **4** is a schematic diagram of a third embodiment of the light emitting module of the invention;

FIG. **5** is a schematic diagram of a fourth embodiment of the light emitting module of the invention;

FIG. **6** is a schematic diagram of a fifth embodiment of the light emitting module of the invention; and

FIG. **7** is a schematic diagram of a sixth embodiment of the light emitting module of the invention.

DESCRIPTION OF THE EMBODIMENTS

Reference will now be made in detail to the present embodiments of the invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the description to refer to the same or like parts.

Light bars with different layouts increase management costs. Therefore, the present invention redesigns the layout of the light bar, and light bars with substantially the same layout can be assembled as a light emitting module. As a result of the light bars of the light emitting module having substantially the same layout, management of the light bars is made easier.

FIG. **1** is a schematic diagram of an embodiment of a light bar of the invention. A light bar **100** includes a substrate **110**, a plurality of light emitting diodes **120** disposed on the substrate **110**, a first connector **130**, and a second connector **140**. The first connector **130** is disposed at an end of the substrate **110**, and the second connector **140** is disposed at another end

of the substrate **110** and is opposite to the first connector **130**. In this embodiment, the first connector **130** and the second connector are disposed at two opposite ends of a long axis of the substrate **110**. In other embodiments, the first connector **130** and the second connector can be disposed at two opposite ends of a long axis of the substrate **110**. The light emitting diodes **120** are disposed between the first connector **130** and the second connector **140**.

The first connector **130** and the second connector **140** are 4-pin connectors. The first connector **130** sequentially includes a first pin **132**, a second pin **134**, a third pin **136**, and a fourth pin **138**. The second connector **140** sequentially includes a fifth pin **142**, a sixth pin **144**, a seventh pin **146**, and an eighth pin **148**. The first pin **132** corresponds to the fifth pin **142**, i.e., corresponds in position horizontally (in the drawing) from the fifth pin **142**. The second pin **134** corresponds to the sixth pin **144**. The third pin **136** corresponds to the seventh pin **146**. The fourth pin **138** corresponds to the eighth pin **148**.

The light bar **100** further includes a first wire **150**, a second wire **160**, a third wire **170**, and a fourth wire **180**. The first wire **150** connects the first pin **132** to the second pin **134**. The second wire **160** connects the third pin **136** to the fifth pin **142**. The third wire **170** connects the sixth pin **144** to the seventh pin **146** and serially connects the light emitting diodes **120**. The fourth wire **180** connects the fourth pin **138** to the eighth pin **148**.

The first wire **150** is U-shaped. Two ends of the first wire **150** are respectively connected to the first pin **132** and the second pin **134**. The second wire **160** is step-shaped. Two opposite ends of the second wire **160** are respectively connected to the third pin **136** and the fifth pin **142**. The light emitting diodes **120** are disposed on the substrate **110** in series. The step-shaped configuration of the second wire **160** is such that the second wire **160** partly surrounds the light emitting diodes **120**. The third wire **170** is U-shaped. Two opposite ends of the third wire **170** are respectively connected to the sixth pin **144** and the seventh pin **146**. The fourth wire **180** is linear. Two opposite ends of the fourth wire **180** are respectively connected to the fourth pin **138** and the eighth pin **148**.

FIG. **2** is a schematic diagram of a first embodiment of a light emitting module of the invention. Plural light bars **100** can be horizontally connected to each other in series through the first connector(s) **130** and the second connector(s) **140**, thereby forming a light emitting module **200**. In this embodiment, the light emitting module **200** is formed by assembling two light bars **100** in a single row. In some embodiments, two or more light bars **100** are assembled together to form a light bar row, and a plurality of light bar rows form the light emitting module **200**. For example, two light bar rows may form the light emitting module **200**, as shown in FIG. **2**.

The two light bars **100** of this embodiment are connected to each other by the first connector **130** of one light bar **100** and the second connector **140** of the other light bar **100**. For convenience, said "one" light bar **100** will be referred to hereinafter as the "right" light bar **100**, and said "other" light bar **100** will be referred to hereinafter as the "left" light bar **100**, using the positional relationship of the two light bars **100** as shown in FIG. **2**. More particularly, the second connector **140** of the left light bar **100** is connected to the first connector **130** of the right light bar **100**. When the first connector **130** of the right light bar **100** is connected to the second connector **140** of the left light bar **100**, the first pin **132** of the first connector **130** is connected to the fifth pin **142** of the second connector **140**, the second pin **134** of the first connector **130** is connected to the sixth pin **144** of the second connector **140**, the third pin **136** of the first connector **130** is connected to the seventh pin **146** of the second connector **140**, and the fourth pin **138** of the first connector **130** is connected to the eighth pin **148** of the second connector **140**.

The light emitting module **200** further includes an adopting board **210**, and a power source **220** and a driving chip **230** disposed on the adopting board **210**. The light emitting module **200** further includes a third connector **240** disposed on the adopting board **210**. The third connector **240** is connected to the second connector **140** of the right light bar **100**. The second connector **140** of the right light bar **100** may be referred to herein as the "edge" second connector **140**, since this second connector **140** is disposed at an end of the horizontally connected light bars **100**. The third connector **240** sequentially includes a ninth pin **242**, a tenth pin **244**, an eleventh pin **246**, and a twelfth pin **248**. When the edge second connector **140** is connected to the third connector **240**, the fifth pin **142** of the second connector **140** is connected to the ninth pin **242** of the third connector **240**, the sixth pin **144** of the second connector **140** is connected to the tenth pin **244** of the third connector **240**, the seventh pin **146** of the second connector **140** is connected to the eleventh pin **246** of the third connector **240**, and the eighth pin **148** of the second connector **140** is connected to the twelfth pin **248** of the third connector **240**.

The light emitting module **200** further includes a fifth wire **250**. The fifth wire **250** is disposed on the adopting board **210** for connecting the ninth pin **242** to the tenth pin **244**. The fifth wire **250** is U-shaped. Two opposite ends of the fifth wire **250** are respectively connected to the ninth pin **242** and the tenth pin **244**. The eleventh pin **246** is connected to the driving chip **230**. The twelfth pin **248** is connected to the power source **220**. The light emitting diodes **120** are serially connected from the sixth pin **144** to the seventh pin **146** of each of the second connectors **140**.

The light emitting module **200** further includes a conductive element **260** for the third pin **136** and the fourth pin **138** of the first connector **130** of the left light bar **100**. The first connector **130** of the left light bar **100** may be referred to as the "edge" first connector **130**, since this first connector **130** is disposed at an end of the horizontally connected light bars **100**. The conductive element **260** can be a wire as illustrated in this embodiment. In other embodiments, the conductive element **260** can be a jumper, a pad, or a connector.

In this embodiment, as described above, the light emitting module **200** includes two light bars **100**. A current provided by the power source **220** is sent to the twelfth pin **248** of the third connector **240**, and the current is further sent to the eighth pin **148** of the second connector **140** of the right light bar **100** through the connection of the eighth pin **148** of the second connector **140** of the right light bar **100** to the twelfth pin **248** of the third connector **240**. The current is sent from the eighth pin **148** of the right light bar **100** to the fourth pin **138** of the first connector **130** of the right light bar **100** via the corresponding fourth wire **180**. The current is then sent from the fourth pin **138** of the right light bar **100** to the eighth pin **148** of the left light bar **100**. The current is further sent from the eighth pin **148** of the left light bar **100** to the fourth pin **138** of the left light bar **100** via the corresponding fourth wire **180**. The current is further sent from the fourth pin **138** of the left light bar **100** to the third pin **138** of the left light bar **100** via the conductive element **260**. The current is then sent from the third pin **136** of the left light bar **100** to the fifth pin **142** of the left light bar **100** via the corresponding second wire **160**. Subsequently, the current is sent from the fifth pin **142** of the left light bar **100** to the first pin **132** of the right light bar **100**. The current is then sent from the first pin **132** of the right light bar **100** to the second pin **134** of the right light bar **100** via the

corresponding first wire **150**. The current is then sent from the second pin **134** of the right light bar **100** to the sixth pin **144** of the left light bar **100** through the connection of this second pin **134** to this sixth pin **144**. The current is then sent from the sixth pin **144** of the left light bar **100** and passes through the serially connected light emitting diodes **120**, and the current is then sent to the seventh pin **146** of the left light bar **100**. Subsequently, the current is sent from the seventh pin **146** of the left light bar **100** to the third pin **136** of the right light bar **100** through the connection of this seventh pin **146** to this third pin **136**. The current is further sent from the third pin **136** of the right light bar **100** to the fifth pin **142** of the right light bar **100** via the second wire **160**. The current is then sent from the fifth pin **142** of the right light bar **100** to the ninth pin **242** of the third connector **240** through the connection between the ninth pin **242** of the third connector **240** and the fifth pin **142** of the right light bar **100**. The current is further sent from the ninth pin **242** of the third connector **240** to the tenth pin **244** of the third connector **240** via the fifth wire **250** on the adopting board **210**. The current is then sent from the tenth pin **244** of the third connector **240** to the sixth pin **144** of the right light bar **100** through the connection between the tenth pin **244** of the third connector **240** and the sixth pin **144** of the right light bar **100**. Next, the current is sent from the sixth pin **144** of the right light bar **100** and is passed through the light emitting diodes **120**, and the current is sent to the seventh pin **146** of the right light bar **100**. Finally, the current is sent from the seventh pin **146** of the right light bar **100** to the tenth pin **246** of the third connector **240** through the connection between the seventh pin **146** of the right light bar **100** and the tenth pin **246** of the third connector **240**, and enters the driving chip **230**.

In order to prevent the first pin **132** and the second pin **134** of the edge first connector **130** of the left light bar **100** from interfering with other peripheral components, the first pin **132** can be optionally shorted with the second pin **134**. For example, the first pin **132** and the second pin **134** of the edge first connector **130** can be connected by a pad or a wire. The driving chip **230** is a 4-pin chip. The driving chip **230** has four pins for connection. Namely, the driving chip **230** can control four rows of light bars **100**. With such a design, the light bars **100** have substantially the same layout, and the light bars **100** can be serially connected in a row to form the light emitting module **200**. The cost of managing the light bars **100** can be reduced, and the assembly efficiency thereof can be increased.

FIG. **3** is a schematic diagram of a second embodiment of the light emitting module of the invention. In this embodiment, two of the light bars **100** are coupled to each other. The difference between this embodiment and the first embodiment is that the eleventh pin **246** of the third connector **240** in this embodiment is connected to the power source **220**, and the twelfth pin **248** of the third connector **240** is connected to the driving chip **230**. The light emitting diodes **120** are serially connected from the seventh pin **146** to the sixth pin **144** of each of the light bars **100**. The current direction in this embodiment is opposite to the current direction of the first embodiment. The current path is shown by the arrows in FIG. **3**.

FIG. **4** is a schematic diagram of a third embodiment of the light emitting module of the invention. More than two light bars **100** can be connected to each other in a row through the method disclosed previously. The second connector **140** of each of the light bars **100** (except for that of the rightmost light bar **100**) is connected to the first connector **130** of the adjacent light bar **100**. The edge second connector **140** (i.e., the second connector **140** of the rightmost light bar **100**) is connected to the third connector **240**. The fifth wire **250** of the adopting board **210** connects the ninth pin **242** of the third connector **240** to the tenth pin **244** of the third connector **240**. The third pin **136** and the fourth pin **138** of the edge first connector **130** (i.e., the first connector **130** of the leftmost light bar **100**) are connected to each other via the conductive element **260**. The eleventh pin **246** of the third connector **240** is connected to the driving chip **230**. The twelfth pin **248** of the third connector **240** is connected to the power source **220**. The light emitting diodes **120** are serially connected from the sixth pin **144** to the seventh pin **146** of each of the light bars **100**. The current path is shown by the arrows in FIG. **4**.

FIG. **5** is a schematic diagram of a fourth embodiment of the light emitting module of the invention. More than two light bars **100** can be connected to each other in a row through the method disclosed previously. The second connector **140** of each of the light bars **100** (except for that of the rightmost light bar **100**) is connected to the first connector **130** of the adjacent light bar **100**. The edge second connector **140** (i.e., the second connector **140** of the rightmost light bar **100**) is connected to the third connector **240**. The fifth wire **250** of the adopting board **210** connects the ninth pin **242** of the third connector **240** to the tenth pin **244** of the third connector **240**. The third pin **136** and the fourth pin **138** of the edge first connector **130** (i.e., the first connector **130** of the leftmost light bar **100**) are connected to each other via the conductive element **260**. The eleventh pin **246** of the third connector **240** is connected to the power source **220**. The twelfth pin **248** of the third connector **240** is connected to the driving chip **230**. The light emitting diodes **120** are serially connected from the seventh pin **146** to the sixth pin **144** of each of the light bars **100**. The current path is shown by the arrows in FIG. **5**.

FIG. **6** is a schematic diagram of a fifth embodiment of the light emitting module of the invention. The light bars **100** connected in rows can be further interconnected by changing the layout of the adopting board **210**. In this embodiment, there are three rows of the light bars **100**, in which the rows of the light bars **100** are referred to as a first row, a second row, and a third row from top to bottom.

More than two light bars **100** can be connected to each other in a row through the method disclosed previously. The second connector **140** of each of the light bars **100** (except for that of the rightmost light bar **100**) is connected to the first connector **130** of the adjacent light bar **100**. The edge second connector **140** (i.e., the second connector **140** of the rightmost light bar **100**) is connected to the third connector **240**. The fifth wire **250** of the adopting board **210** connects the ninth pin **242** of the third connector **240** to the tenth pin **244** of the third connector **240**. The third pin **136** and the fourth pin **138** of the edge first connector **130** (i.e., the first connector **130** of the leftmost light bar **100**) are connected to each other via the conductive element **260**.

The adopting board **210** has two of the fifth wires **250**, namely, the fifth wire **250** for connecting the ninth pin **242** and the tenth pin **244** of the third connector **240** connected to the first row of the light bars **100**, and the fifth wire **250** for connecting the ninth pin **242** and the tenth pin **244** of the third connector **240** connected to the third row of the light bars **100**.

The adopting board **210** further includes a sixth wire **270**. The sixth wire **270** is U-shaped. An end of the sixth wire **270** is connected to the eleventh pin **246** of the third connector **240** connected to the first row of the light bars **100**, and another end of the sixth wire **270** is connected to the tenth pin **244** of the third connector **240** connected to the second row of the light bars **100**.

The adopting board **210** further includes a seventh wire **280**. The seventh wire **280** is U-shaped. An end of the seventh

wire **280** is connected to the twelfth pin **248** of the third connector **240** connected to the second row of the light bars **100**, and another end of the seventh wire **280** is connected to the eleventh pin **246** of the third connector **240** connected to the third row of the light bars **100**.

The twelfth pin **248** of the third connector **240** connected to the first row of the light bars **100** is connected to the power source **220**. The ninth pin **242** and the eleventh pin **246** of the third connector **240** connected to the second row of the light bars **100** are connected to the driving chip **230**. The twelfth pin **248** of the third connector **240** connected to the first row of the light bars **100** is connected to the power source **220**. The light emitting diodes **120** are serially connected from the sixth pin **144** to the seventh pin **146** of each of the light bars **100**. The current path is shown by the arrows in FIG. **6**.

FIG. **7** is a schematic diagram of a sixth embodiment of the light emitting module of the invention. Only the differences between this embodiment and the fifth embodiment will be described. The twelfth pin **248** of the third connector **240** connected to the first row of the light bars **100** is connected to the driving chip **230**. The ninth pin **242** and the eleventh pin **246** of the third connector **240** connected to the second row of the light bars **100** are connected to the power source **220**. The twelfth pin **248** of the third connector **240** connected to the third row of the light bars **100** is connected to the driving chip **230**. The light emitting diodes **120** are serially connected from the seventh pin **146** to the sixth pin **144** of each of the light bars **100**. The current path is shown by the arrows in FIG. **7**.

According to above embodiments, users may flexibly assemble the light bars with substantially the same layout in rows, and the light bars in rows can be further interconnected so as to realize a light emitting module of a predetermined size. The light bars utilized in the light emitting module have substantially the same layout. Therefore, the cost of managing the light bars can be reduced, and assembly can be performed more easily.

Although the present invention has been described in considerable detail with reference to certain embodiments thereof, other embodiments are possible. Therefore, the spirit and scope of the appended claims should not be limited to the description of the embodiments contained herein.

It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the present invention without departing from the scope or spirit of the invention. In view of the foregoing, it is intended that the present invention cover modifications and variations of this invention provided they fall within the scope of the following claims and their equivalents.

What is claimed is:

1. A light bar comprising:

a substrate;

a plurality of light emitting diodes disposed on the substrate;

a first connector disposed at a first end of the substrate, the first connector comprising:

a first pin, at a top of said first end;

a second pin, adjacent to said first pin;

a third pin, adjacent to said second pin; and

a fourth pin, at a bottom of said first end adjacent to said third pin;

a second connector disposed at a second end of the substrate opposite to the first connector, the second connector comprising:

a fifth pin, at a top of said second end;

a sixth pin, adjacent to said fifth pin;

a seventh pin, adjacent to said sixth pin; and

an eighth pin, at a bottom of said second end adjacent to said seventh pin;

a first wire connecting the first pin to the second pin;

a second wire connecting the third pin to the fifth pin;

a third wire connecting the sixth pin to the seventh pin and serially connecting the plurality of light emitting diodes, wherein all of the plurality of light emitting diodes on the substrate are connected in series between the sixth pin and the seventh pin; and

a fourth wire connecting the fourth pin to the eighth pin.

2. The light bar of claim **1**, wherein the first wire and the third wire are U-shaped, and the fourth wire is linearly arranged.

3. The light bar of claim **2**, wherein the second wire is step-shaped and partly surrounds the plurality of light emitting diodes.

4. The light bar of claim **1**, wherein an anode of each of all of the pluralities of light emitting diodes is electrically connected to the sixth pin, and a cathode of each of all of the pluralities of light emitting diodes is electrically connected to the seventh pin.

5. The light bar of claim **1**, wherein an anode of each of all of the pluralities of light emitting diodes is electrically connected to the seventh pin, and a cathode of each of all of the pluralities of light emitting diodes is electrically connected to the sixth pin.

6. A light emitting module comprising:

a plurality of the light bars of claim **1**, wherein the second connector of each of the light bars is connected to the first connector of the adjacent light bar.

7. The light emitting module of claim **6**, further comprising an adopting board, and a third connector disposed on the adopting board, wherein the third connector is connected to the second connector of the light bar adjacent to the adopting board.

8. The light emitting module of claim **7**, wherein the third connector sequentially comprises a ninth pin, a tenth pin, an eleventh pin, and a twelfth pin, the light emitting module further comprising a fifth wire for connecting the ninth pin to the tenth pin.

9. The light emitting module of claim **8**, further comprising a power source, wherein the eleventh pin or the twelfth pin is connected to the power source.

10. The light emitting module of claim **8**, further comprising a driving chip, wherein the twelfth pin or the eleventh pin is connected to the driving chip.

11. The light emitting module of claim **6**, further comprising a conductive element for electrically interconnecting the third pin and the fourth pin of the first connector of the light bar farthest from the adopting board.

12. The light emitting module of claim **11**, wherein the conductive element is a jumper, a pad, a wire, or a connector.

13. The light emitting module of claim **6**, wherein the first pin, the second pin, the third pin, and the fourth pin are sequentially arranged.

14. The light emitting module of claim **6**, wherein the fifth pin, the sixth pin, the seventh pin, and the eighth pin are sequentially arranged.

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